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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/808,623	03/24/2004	Man-ho Chiang	039236-025000	6088

22204 7590 04/17/2006

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EXAMINER


MAI, ANH T

ART UNIT PAPER NUMBER

2832

DATE MAILED: 04/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/808,623	CHIANG ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Anh T. Mai	2832	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4-10, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto [6373736] in view of Tacheuki [6189200].

Matsumoto discloses:

- a plurality of conductive traces 6 having a curved shape and two terminal ends each conductive trace formed on an insulating layer of PCB 5, and positioned such that forming a stack;
- each said insulating layers defining an aperture wherein each said conductive trace is shaped to substantially surround the perimeter of the aperture;
- a plurality of via connection conductors 14 for interconnecting the terminal ends of each the conductive traces to form at least one turn of the first winding;
- a first additional conductor 15 for connecting first conductive layer to at least one conductive trace;
- second additional for connecting at least one of said conductive trace as shown in figure 2;
- a core 1 positioned in the space defined by the apertures, such that the two windings are formed by conductive traces and conductive layers [figures 1-2].

- The conductors comprise one plated through hole 10 formed on insulating layers.

Matsumoto discloses the claimed invention as cited above except for a first conductive layer attached to an outer surface of said PCB in a position on the top of the stack and second conductive layer attached to a second outer surface of PCB in a position at the bottom of the stack. Takeuchi discloses conductive layer 18a and 18b on the top of the stack and bottom of the stack respectively [figure 1] to provide external electrode layers [col 4, lines 35-40]. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to have conductive layers as taught by Takeuchi to the inductor as disclosed by Matsumoto. The motivation would have been to form external electrode layers for the inductor. Therefore, it would have been obvious to combine Takeuchi with Matsumoto.

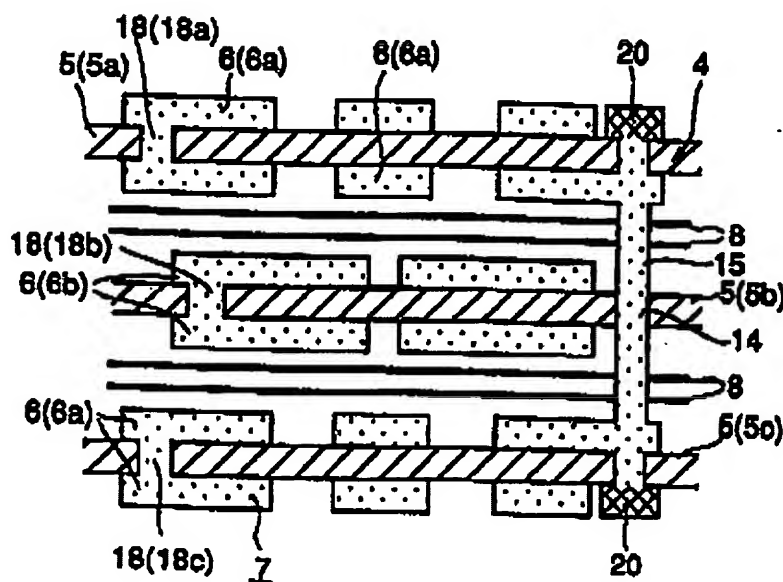


FIG. 2

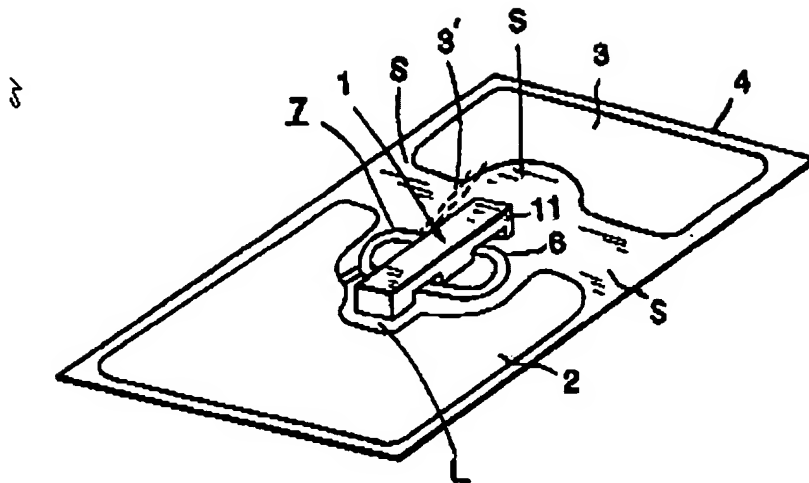


FIG. 1

3. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yue [6717502].

Yue discloses:

- a plurality of conductive traces 214 having spiral shapes and two terminal ends ;
- each conductive trace formed on an insulating layer of substrate 116 [figure 2] positioned such that the conductive traces form a stack;
- one of said conductive trace 214 is formed on the top surface of substrate 116;
- a plurality of conductors [vias] for interconnecting the terminal ends of each conductive trace to form two windings, each has at least one turn;
- a conductive layer 214' conductively attached to said top conductive trace in a position at the top of said stack [figure 2].

Yue discloses the invention as claimed except for curve shaped conductive traces. It would have been an obvious matter of design choice to select curve spiral instead of square spiral,

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since such a modification in shape of the conductor would provide particular configuration for a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) MPEP 2144.04 Changes in shape

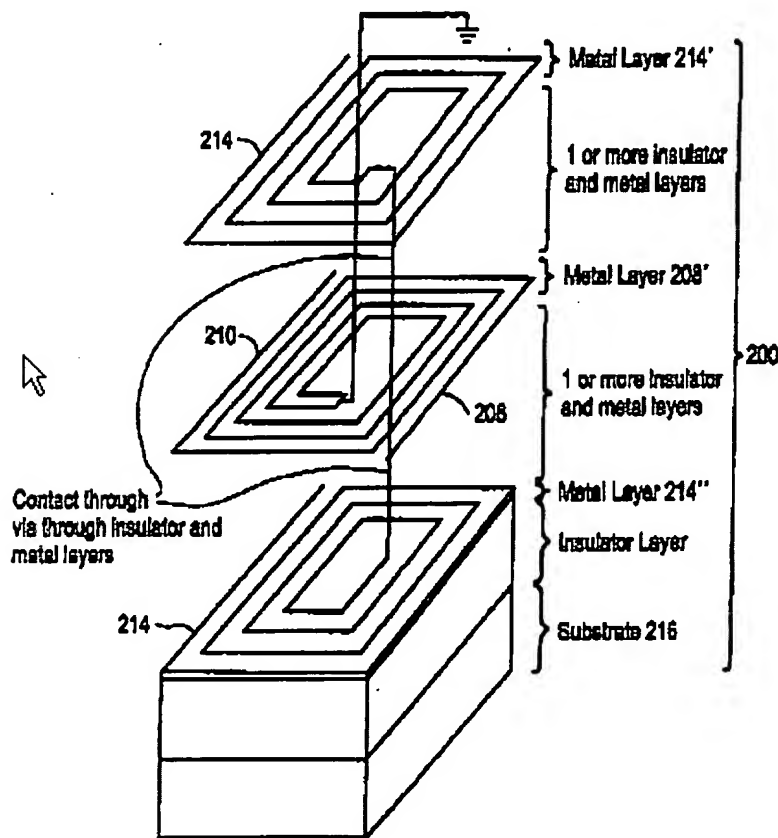


FIG. 2

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi et al. [6189200].

Takeuchi discloses:

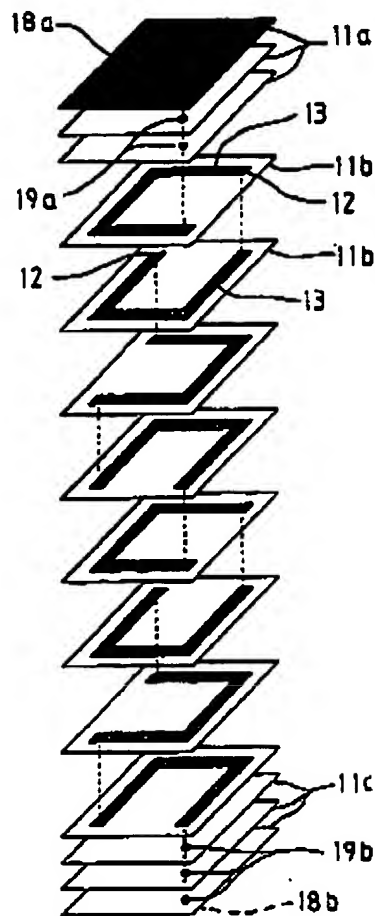
- a plurality of conductive traces 13 having spiral shapes and two terminal ends ;

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- each conductive trace formed on an insulating layer of substrate 11b [figure 2] positioned such that the conductive traces form a stack;
- first one of said conductive traces is formed on the top surface of substrate 11b;
- second one of said conductive traces is formed on the bottom surface of the substrate;
- a plurality of conductors [vias holes] 12 for interconnecting the terminal ends of each conductive trace to form two windings, each has at least one turn;
- first conductive layer 18a conductively attached to top conductive trace 11a;
- second conductive layer 18b 18a conductively attached to bottom conductive trace 11a as shown in figure 1.

Takeuchi discloses the invention as claimed except for curve shaped conductive traces. It would have been an obvious matter of design choice to select curve spiral instead of square spiral, since such a modification in shape of the conductor would provide particular configuration for a component. A change in shape is generally recognized as being within the level of ordinary skill in the art. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) MPEP 2144.04 Changes in shape

FIG. 1



5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Tacheuki as applied in claim 1 above and further in view of Ferencz et al.

Matsumoto in view of Tacheuki discloses the claimed invention as cited above except for the soldered attachment of the top trace to the first conductive layer. Ferencz discloses the second PCB containing the primary windings is attached to the first PCB by attachment tabs that are soldered to receiving pads of the first PCB. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to solder attachment as taught by Ferencz to Matsumoto in view of Tacheuki. The motivation would have been to provide connection



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between two electrically conductive parts. Therefore, it would have been obvious to combine Ferenzc with Matsumoto in view of Tacheuki.

6. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Tacheuki as applied in claim 1 above and further in view of Kobayashi [5684445]. Matsumoto in view of Tacheuki discloses the claimed invention as cited above except for an insulating layer between the top conductive plate and first conductive layer. Kobayashi discloses an insulating layer 11 placing between the windings 4,6 of the transformer [figure 1] to insulate the windings from each other. At the time of the invention, it would have been obvious to a person of ordinary skill in the art placing an insulation layer as taught by Kobayshi between the windings as disclosed by Matsumoto in view of Tacheuki. The motivation would have been to insulate two electrical windings. Therefore, it would have been obvious to combine Kobayshi with Matsumoto in view of Tacheuki.

#### *Response to Arguments*

7. Applicant's arguments with respect to claims 1-17 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh T. Mai whose telephone number is 571-272-1995. The examiner can normally be reached on 5/4/9 Schedule.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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am

A handwritten signature in black ink, appearing to read 'Anh Mai', with a long, sweeping horizontal stroke extending to the right.

**ANH MAI  
PRIMARY EXAMINER**